

## APPENDIX 2: Data of EMI test

### 26dB Emission Bandwidth

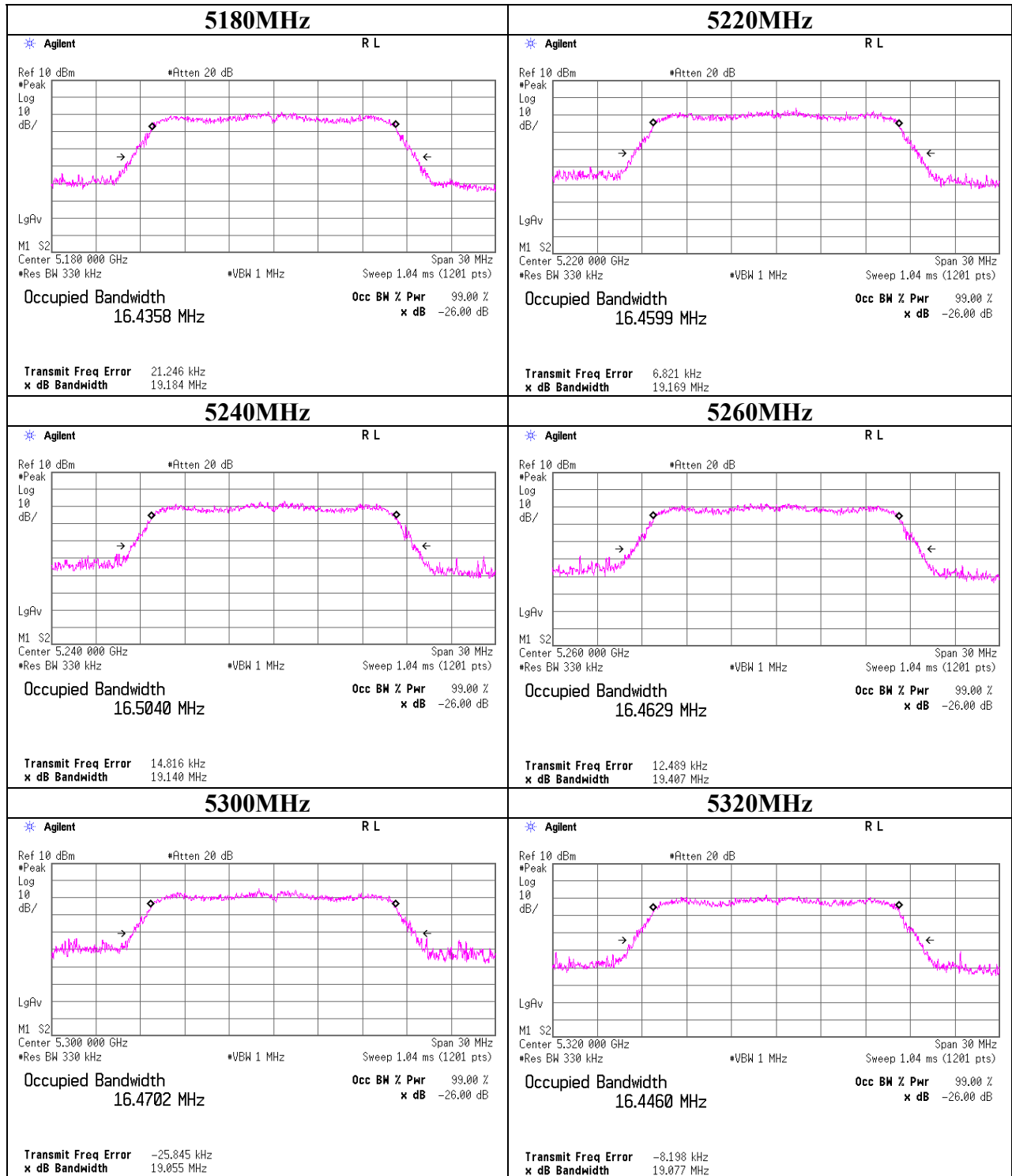
Test place                      Head Office EMC Lab. No.4 Measurement Room  
Report No.                      31DE0057-HO-01  
Date                              11/14/2010  
Temperature/ Humidity        25deg.C. / 42%  
Engineer                        Takeshi Choda  
Mode                              11a Tx

Antenna	Frequency [MHz]	26dB Emission Bandwidth [MHz]	Limit [MHz]
0	5180	19.184	-
	5220	19.169	-
	5240	19.140	-
	5260	19.407	-
	5300	19.055	-
	5320	19.077	-
	5500	19.288	-
	5600	19.159	-
	5700	19.266	-

Antenna	Frequency [MHz]	26dB Emission Bandwidth [MHz]	Limit [MHz]
1	5180	19.064	-
	5220	19.473	-
	5240	19.177	-
	5260	19.376	-
	5300	19.284	-
	5320	19.269	-
	5500	19.401	-
	5600	22.172	-
	5700	19.509	-

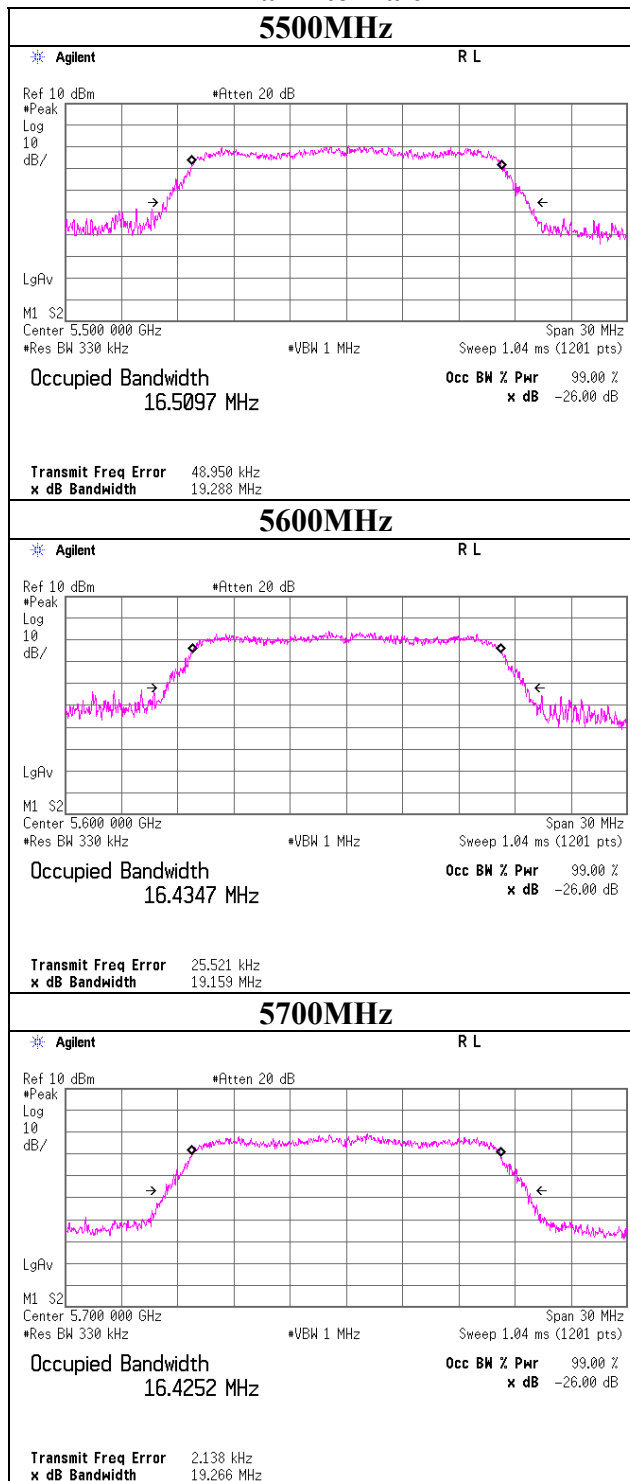
## 26dB Emission Bandwidth

### 11a Antenna 0



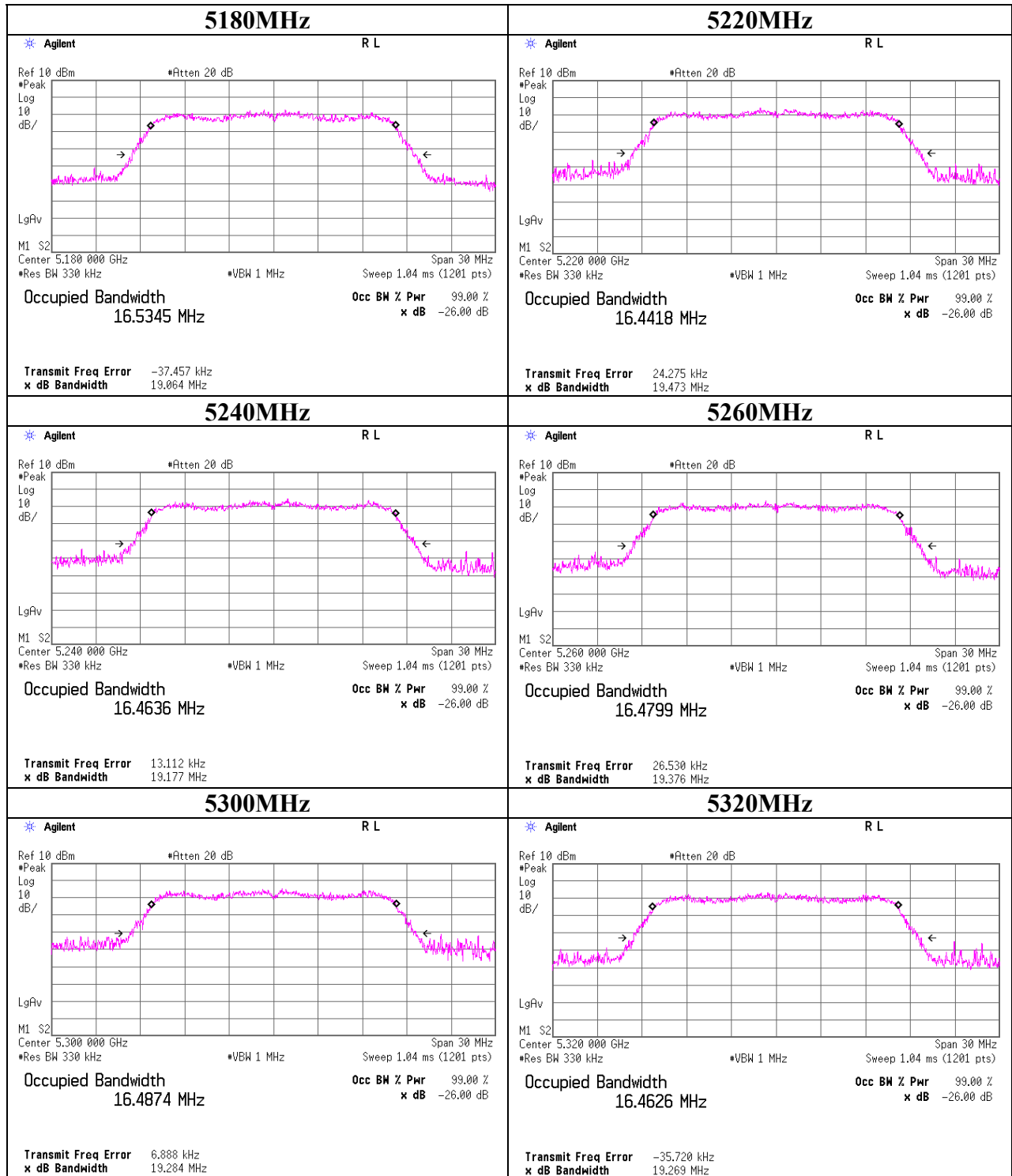
## 26dB Emission Bandwidth

### 11a Antenna 0



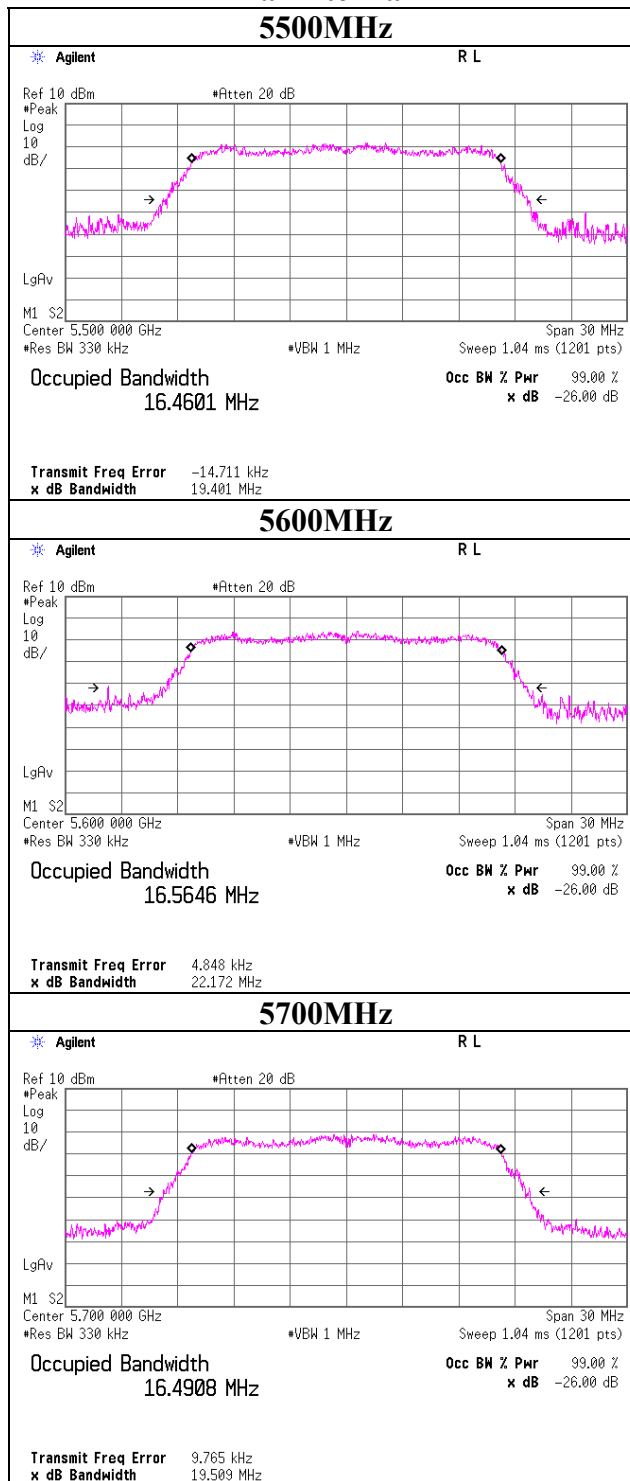
## 26dB Emission Bandwidth

### 11a Antenna 1



## 26dB Emission Bandwidth

### 11a Antenna 1



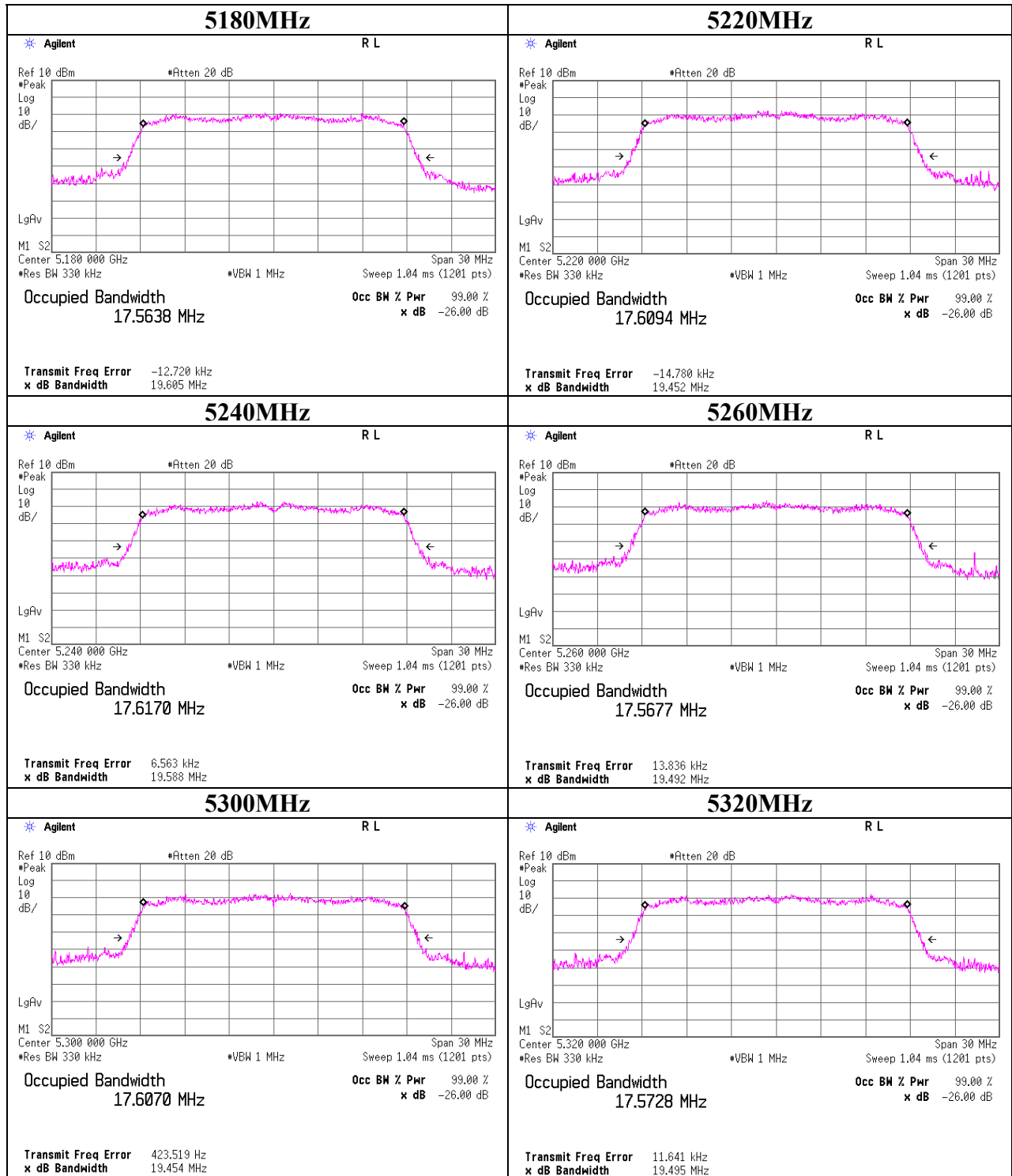
## 26dB Emission Bandwidth

Test place : Head Office EMC Lab. No.4 Measurement Room  
 Report No. : 31DE0057-HO-01  
 Date : 11/15/2010                      11/16/2010  
 Temperature/ Humidity : 26deg.C. / 31%                      23deg.C. / 36%  
 Engineer : Takeshi Choda                      Takeshi Choda  
 Mode : 11n-20 Tx

Antenna	Frequency [MHz]	26dB Emission Bandwidth [MHz]	Limit [MHz]
0	5180	19.605	-
	5220	19.452	-
	5240	19.588	-
	5260	19.492	-
	5300	19.454	-
	5320	19.495	-
	5500	19.446	-
	5600	19.515	-
	5700	19.523	-
1	5180	19.510	-
	5220	19.503	-
	5240	19.474	-
	5260	21.208	-
	5300	19.385	-
	5320	19.424	-
	5500	19.624	-
	5600	19.529	-
	5700	19.566	-

## 26dB Emission Bandwidth

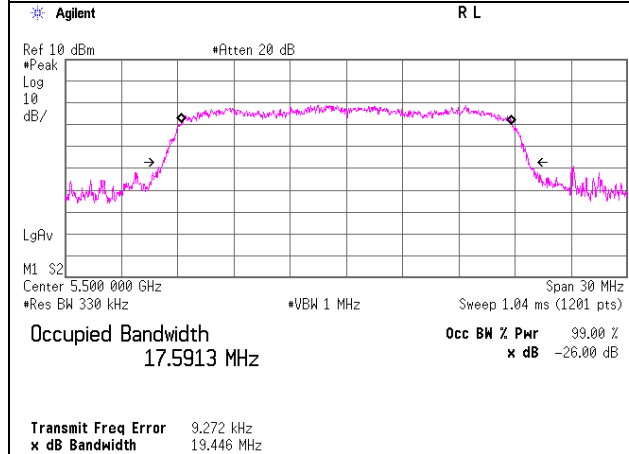
### 11n-20 Antenna 0



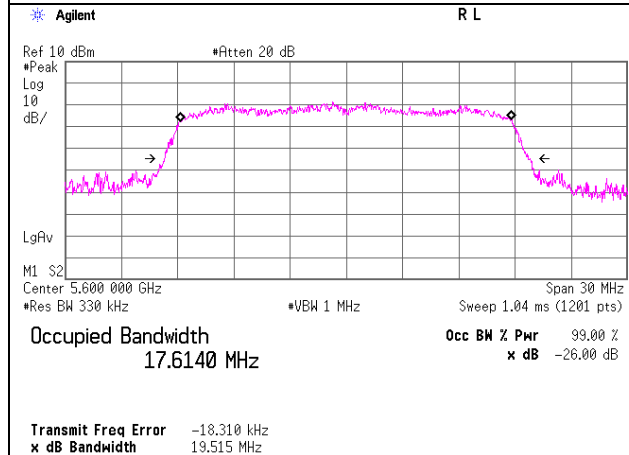
## 26dB Emission Bandwidth

### 11n-20 Antenna 0

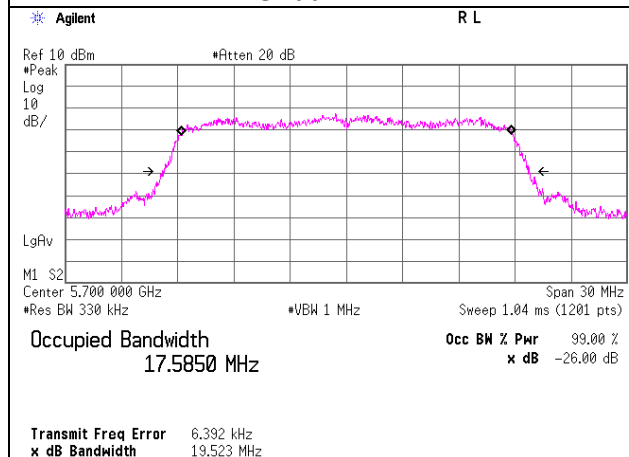
#### 5500MHz



#### 5600MHz



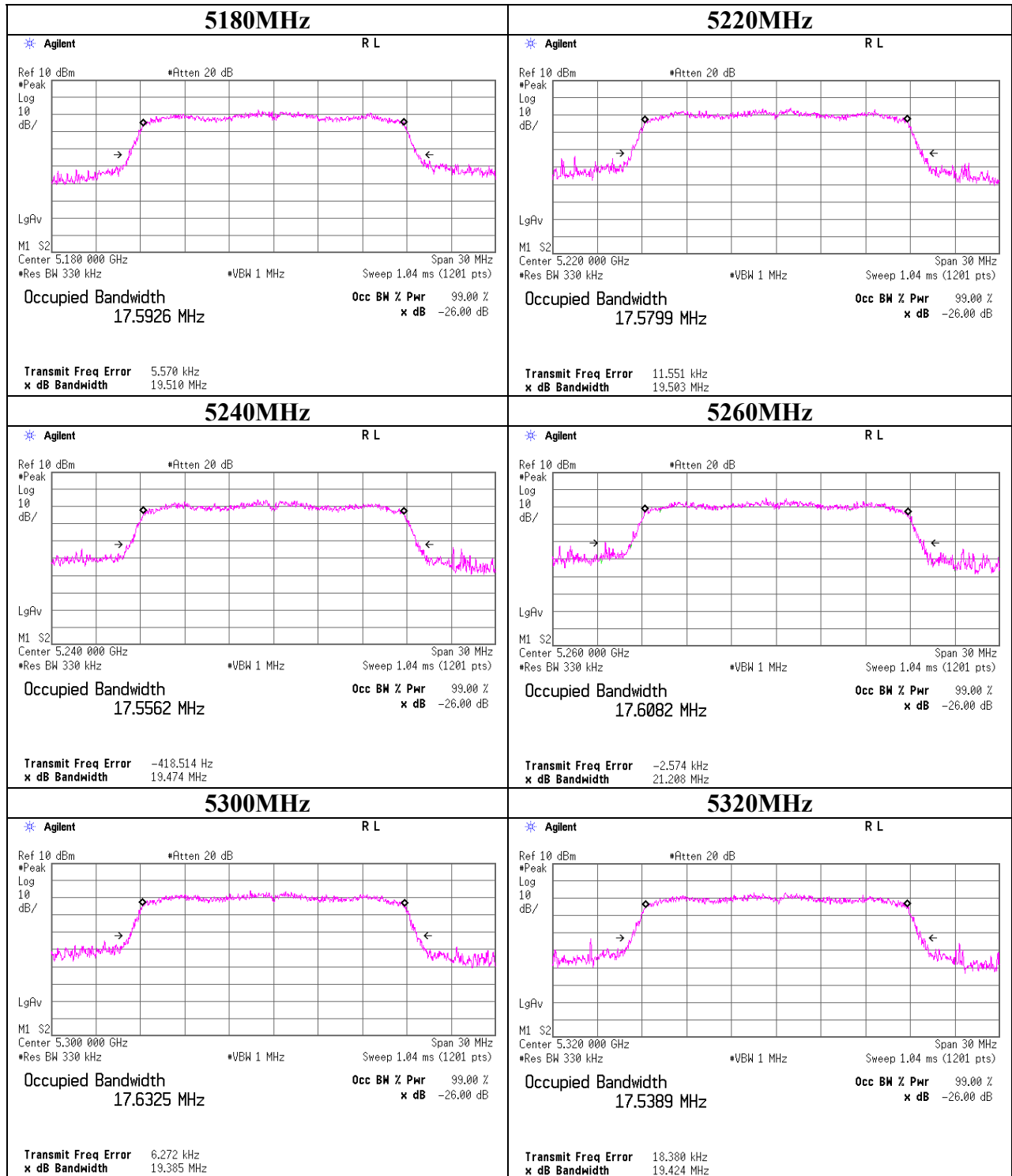
#### 5700MHz





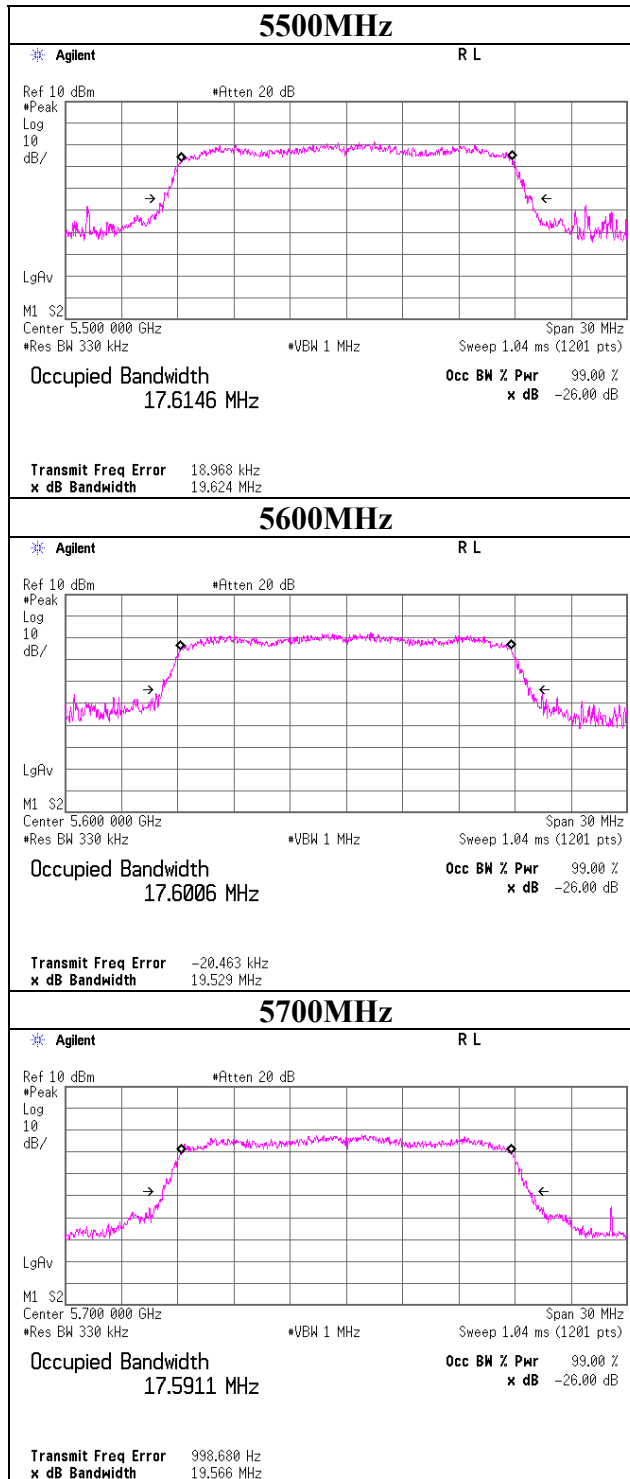
## 26dB Emission Bandwidth

### 11n-20 Antenna 1



## 26dB Emission Bandwidth

### 11n-20 Antenna 1



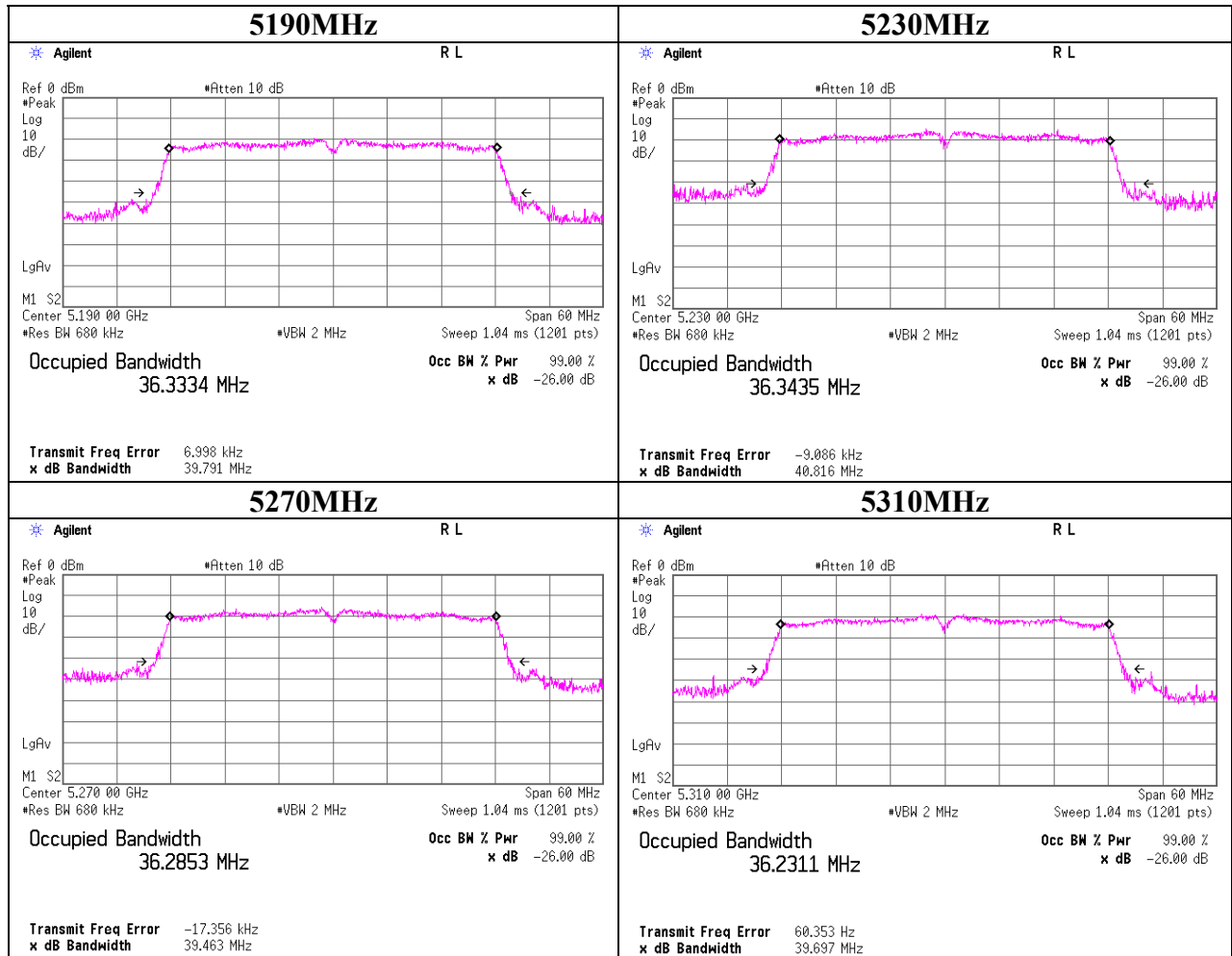
## 26dB Emission Bandwidth

Test place : Head Office EMC Lab. No.4 Measurement Room  
Report No. : 31DE0057-HO-01  
Date : 11/16/2010  
Temperature/ Humidity : 23deg.C. / 36%  
Engineer : Takeshi Choda  
Mode : 11n-40 Tx

Antenna	Frequency [MHz]	26dB Emission Bandwidth [MHz]	Limit [MHz]
0	5190	39.791	-
	5230	40.816	-
	5270	39.463	-
	5310	39.697	-
	5510	39.395	-
	5590	39.790	-
	5670	39.890	-
1	5190	39.431	-
	5230	39.475	-
	5270	40.108	-
	5310	39.655	-
	5510	39.944	-
	5590	39.593	-
	5670	39.459	-

## 26dB Emission Bandwidth

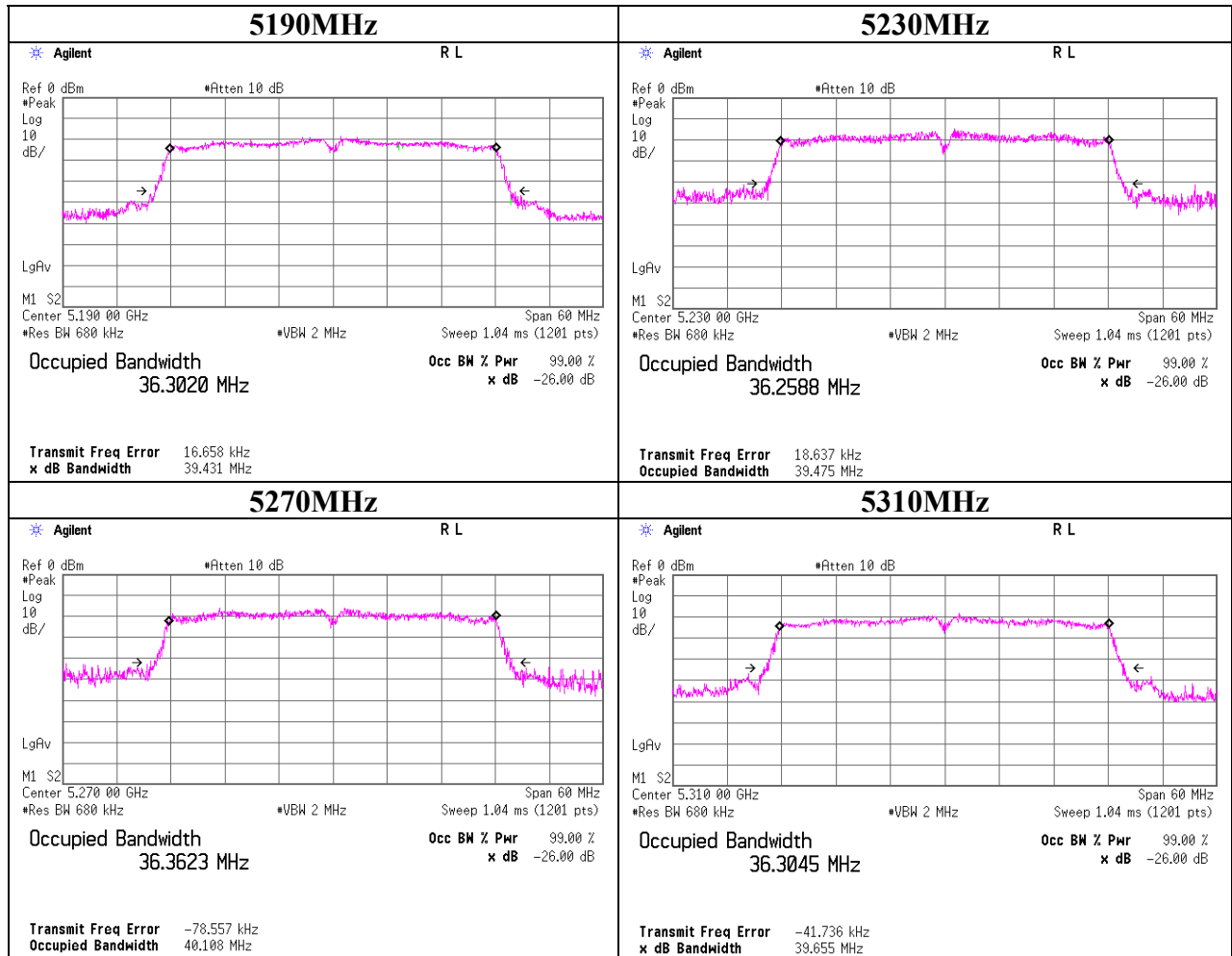
### 11n-40 Antenna 0





## 26dB Emission Bandwidth

### 11n-40 Antenna 1









**Maximum Peak Output Power**  
(Reference data)

Test place Head Office EMC Lab. No.4 and 6 Measurement Room  
Report No. 31DE0057-HO-01  
Date 11/15/2010 11/16/2010 12/08/2010  
Temperature/ Humidity 26deg.C. / 31% 23deg.C. / 36% 22deg.C. / 31%  
Engineer Takeshi Choda Takeshi Choda Satofumi Matsuyama  
Mode 11n-20 Tx

**Antenna 0**

Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-1.39	2.64	10.13	1.70	11.38	13.08	16.92	-	5.54	-
5220.0	0.32	2.64	10.13	1.70	13.09	14.79	16.88	-	3.79	-
5240.0	0.01	2.63	10.13	1.70	12.77	14.47	16.91	-	4.14	-
5260.0	0.69	2.63	10.13	1.70	13.45	15.15	23.89	-	10.44	-
5300.0	-0.05	2.63	10.13	1.70	12.71	14.41	23.89	-	11.18	-
5320.0	0.07	2.63	10.14	1.70	12.84	14.54	23.89	-	11.05	-
5500.0	-3.08	2.61	10.14	2.70	9.67	12.37	23.88	-	14.21	-
5600.0	-1.14	2.63	10.15	2.70	11.64	14.34	23.90	-	12.26	-
5700.0	-5.40	2.66	10.16	2.70	7.42	10.12	23.90	-	16.48	-

**Antenna 1**

Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-0.21	2.64	10.13	2.40	12.56	14.96	16.90	-	4.34	-
5220.0	1.49	2.64	10.13	2.40	14.26	16.66	16.90	-	2.64	-
5240.0	1.35	2.63	10.13	2.40	14.11	16.51	16.89	-	2.78	-
5260.0	2.30	2.63	10.13	2.40	15.06	17.46	23.97	-	8.91	-
5300.0	1.44	2.63	10.13	2.40	14.20	16.60	23.87	-	9.67	-
5320.0	1.13	2.63	10.14	2.40	13.90	16.30	23.88	-	9.98	-
5500.0	0.28	2.61	10.14	2.80	13.03	15.83	23.92	-	10.89	-
5600.0	1.56	2.63	10.15	2.80	14.34	17.14	23.90	-	9.56	-
5700.0	-3.40	2.66	10.16	2.80	9.42	12.22	23.91	-	14.49	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss  
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna Gain  
15.407(a)(1) Limit(Cond.) = 16.98dBm(50mW) or 4 + 10log(26dB BW) dBm  
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

**Antenna 0, 5220MHz**

MCS	Reading [dBm]	Remark
0	0.32	*
1	0.26	
2	0.26	
3	0.24	
4	0.24	
5	0.18	
6	0.26	
7	0.28	

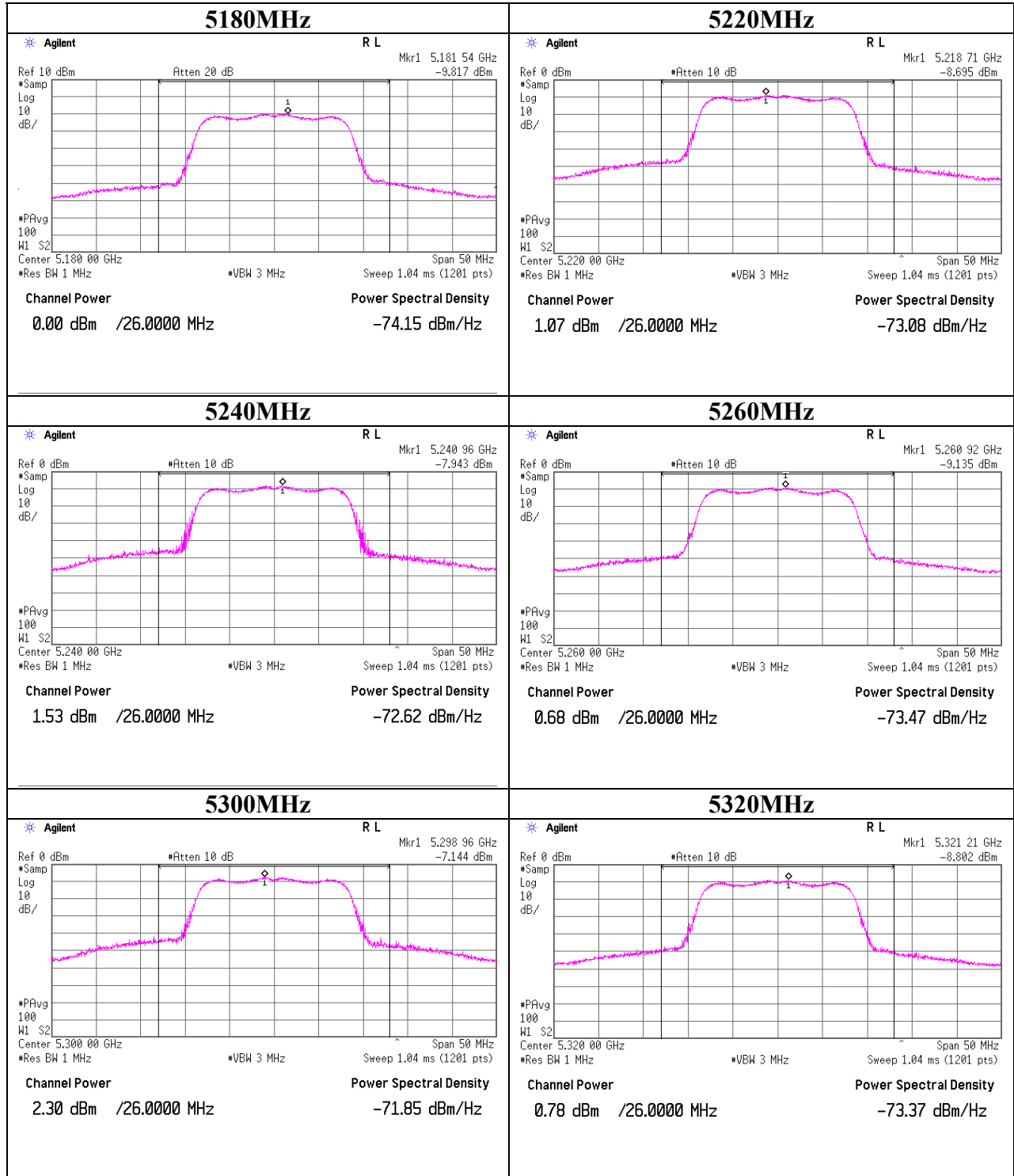
\*: Worst Rate

All comparison were carried out on same frequency and measurement factors.



**Maximum Peak Output Power**  
 (Reference data)

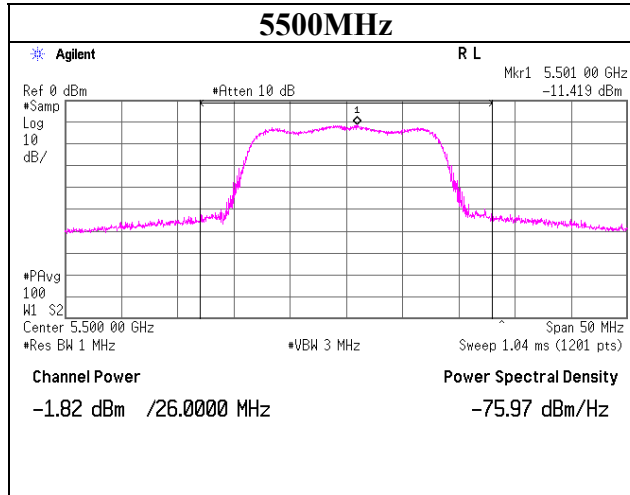
**11a Antenna 0**



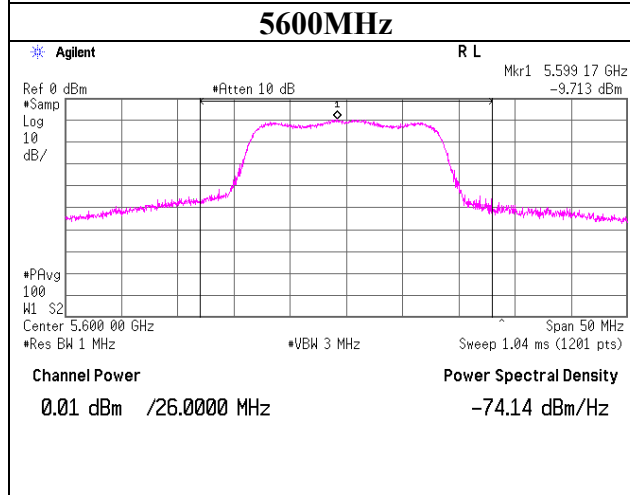
**Maximum Peak Output Power**  
 (Reference data)

**11a Antenna 0**

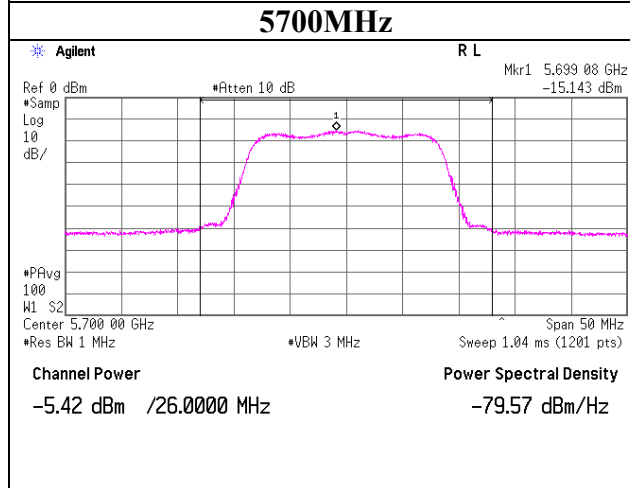
**5500MHz**



**5600MHz**

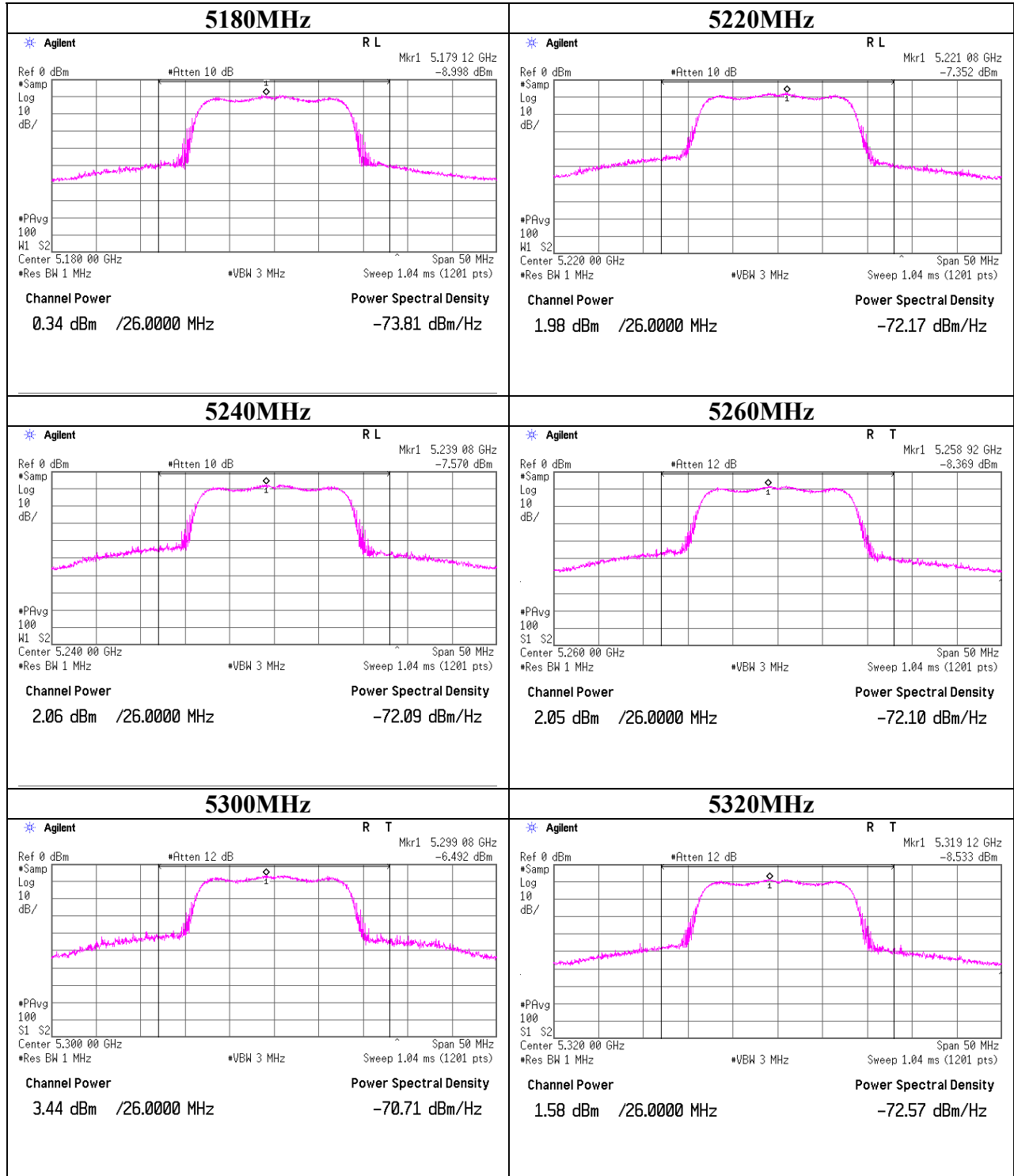


**5700MHz**



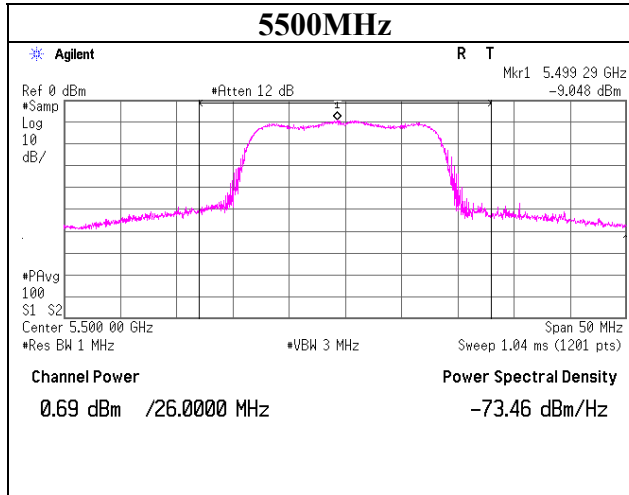
**Maximum Peak Output Power**  
 (Reference data)

**11a Antenna 1**

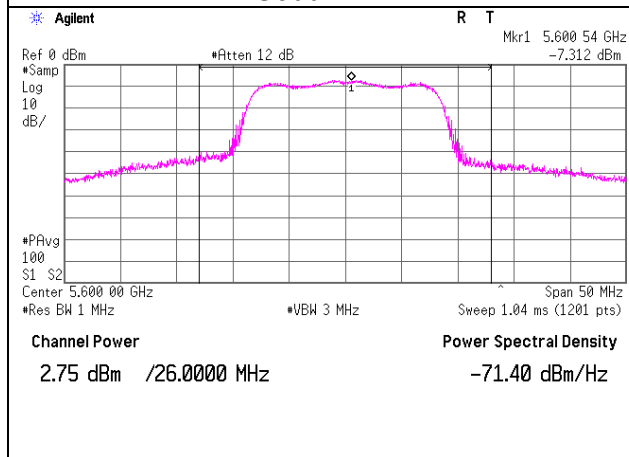


**Maximum Peak Output Power**  
 (Reference data)

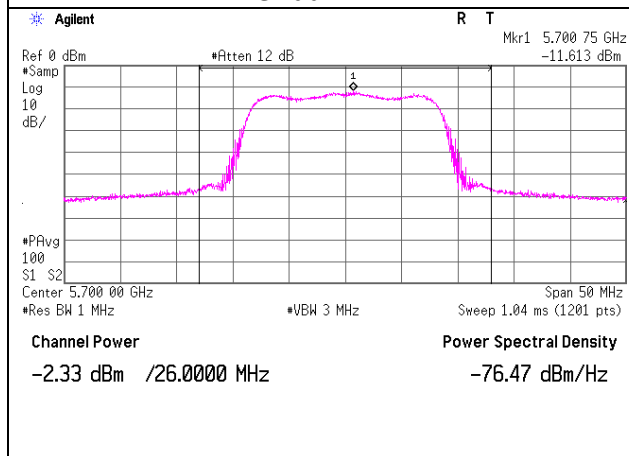
**11a Antenna 1**  
**5500MHz**



**5600MHz**

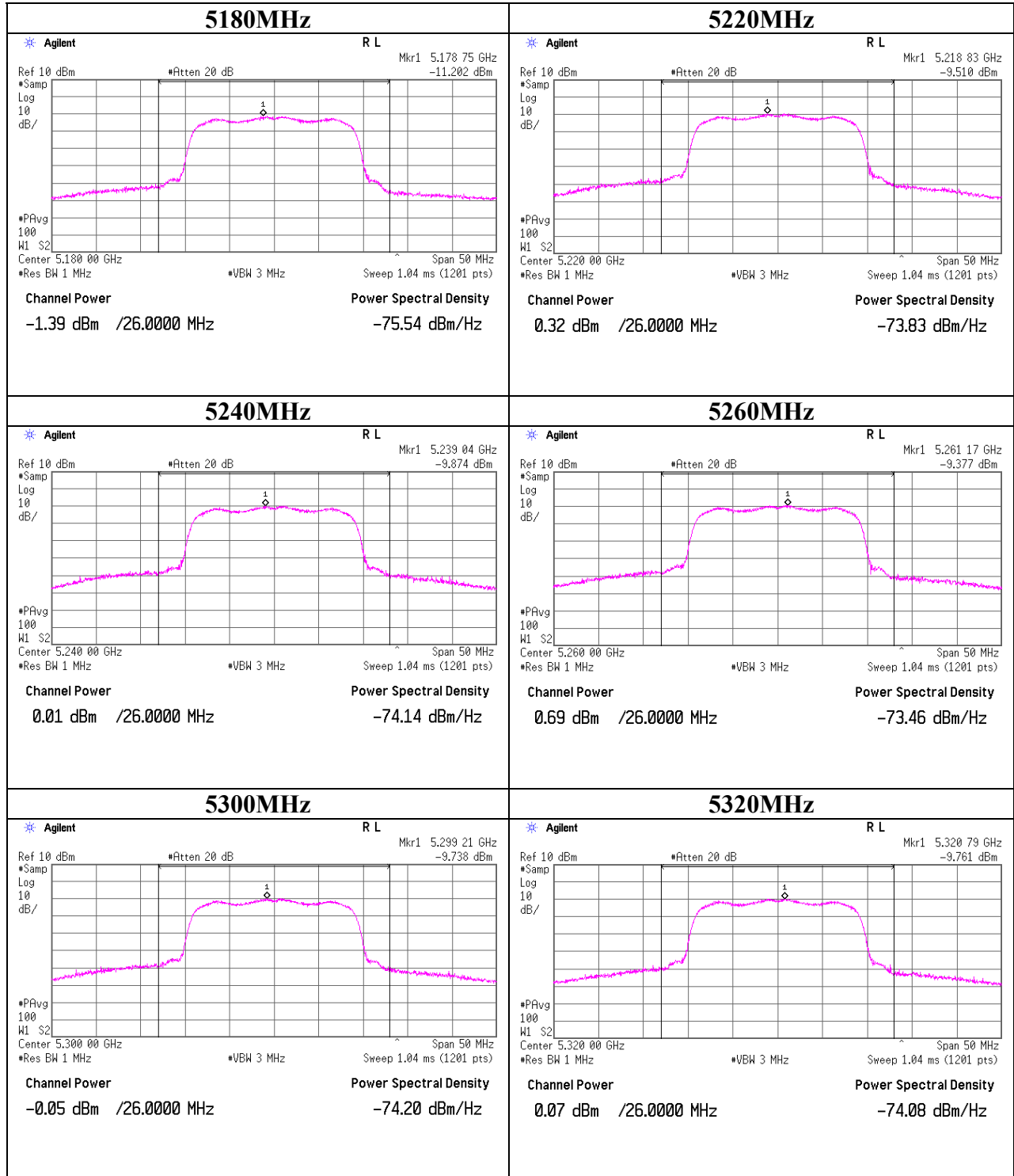


**5700MHz**



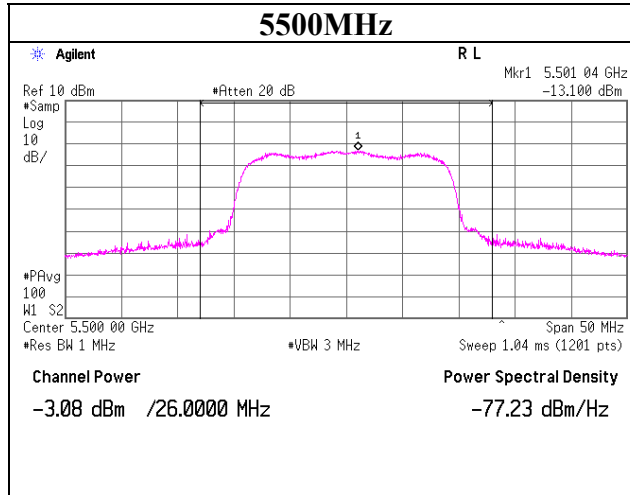
**Maximum Peak Output Power**  
 (Reference data)

**11n-20 Antenna 0**

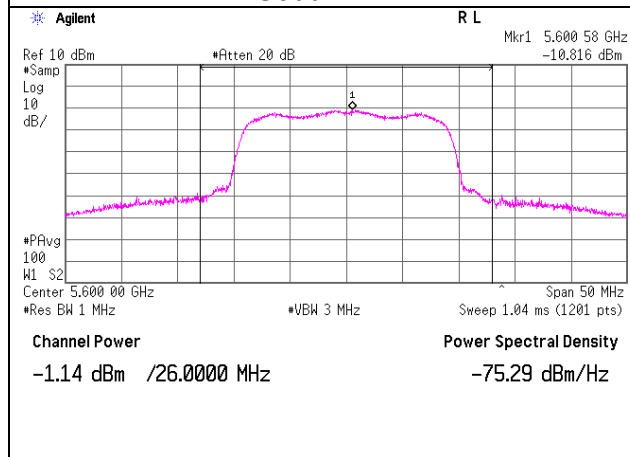


**Maximum Peak Output Power**  
 (Reference data)

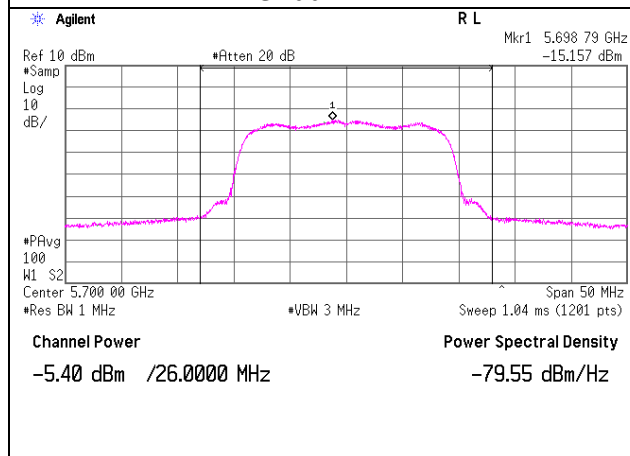
**11n-20 Antenna 0**  
**5500MHz**



**5600MHz**



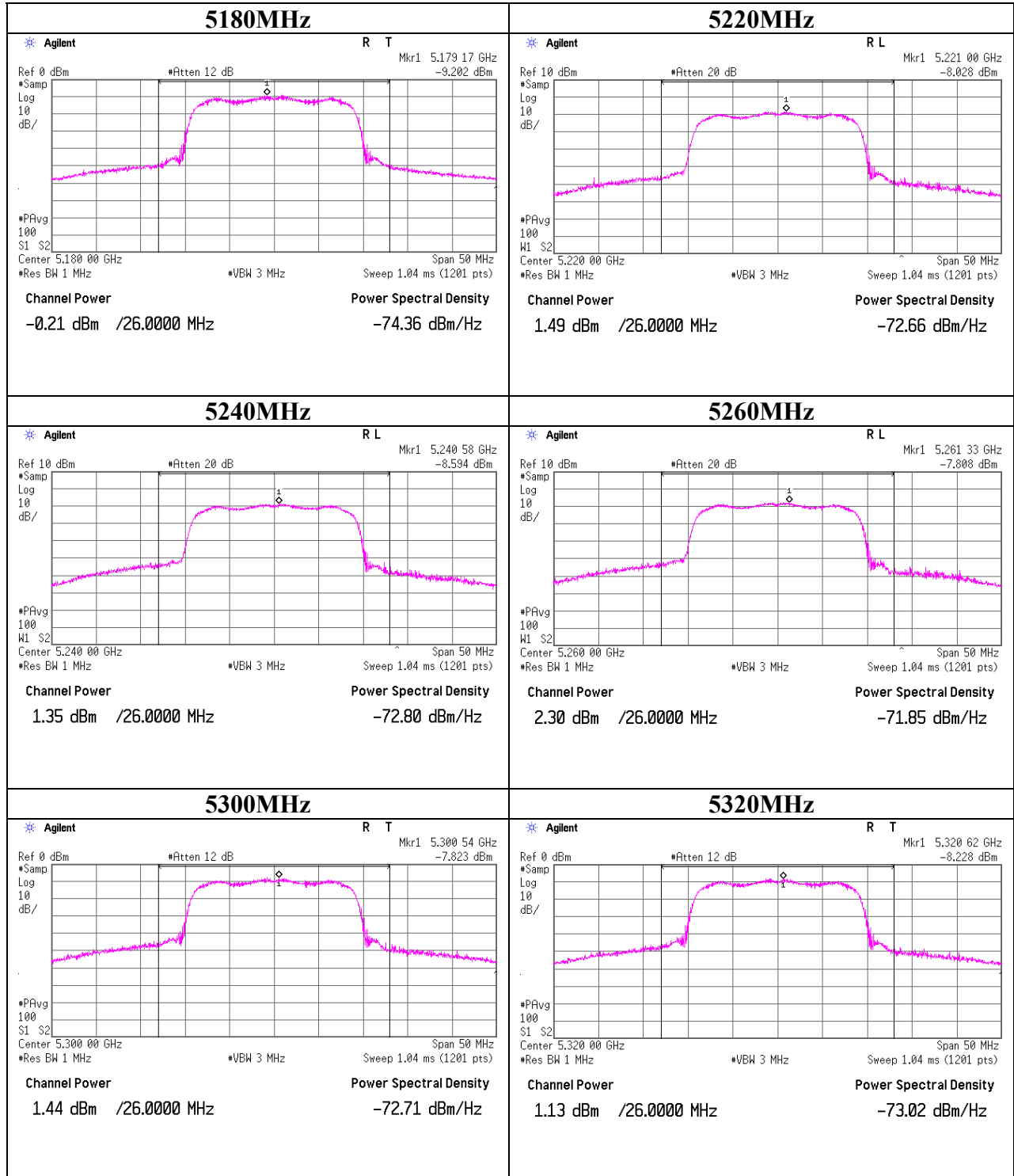
**5700MHz**





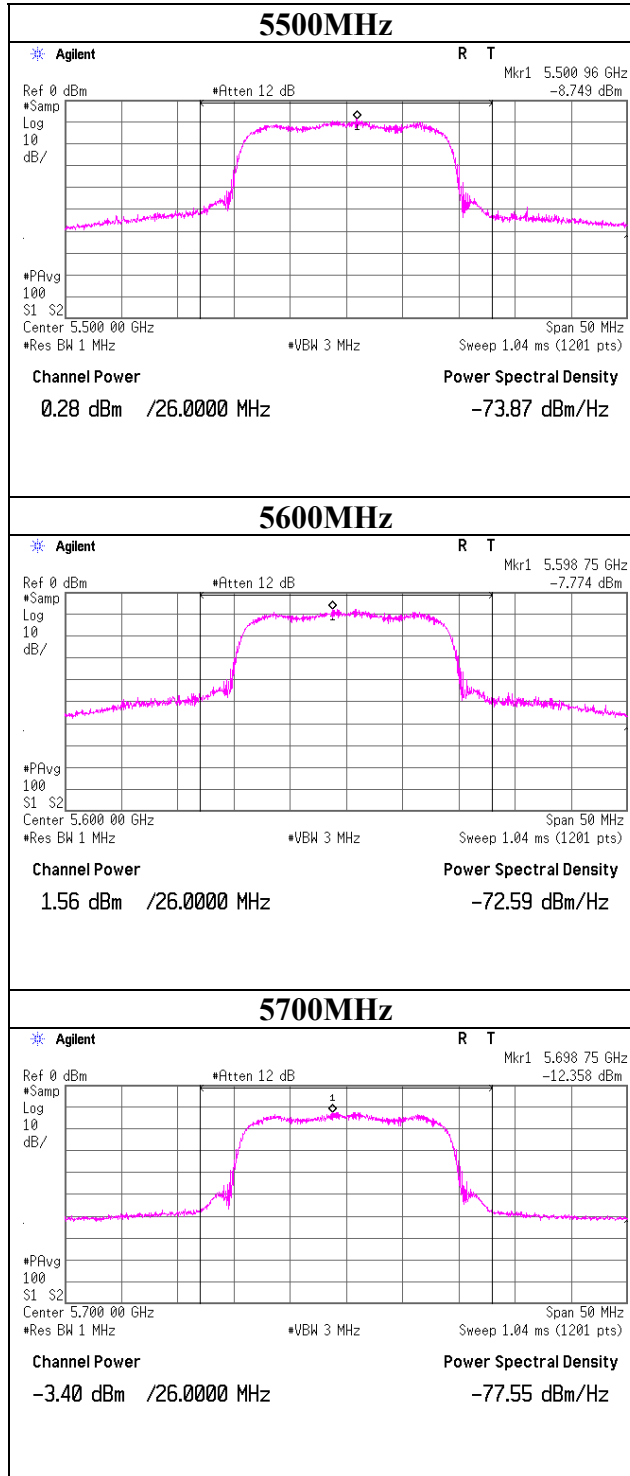
**Maximum Peak Output Power**  
 (Reference data)

**11n-20 Antenna 1**



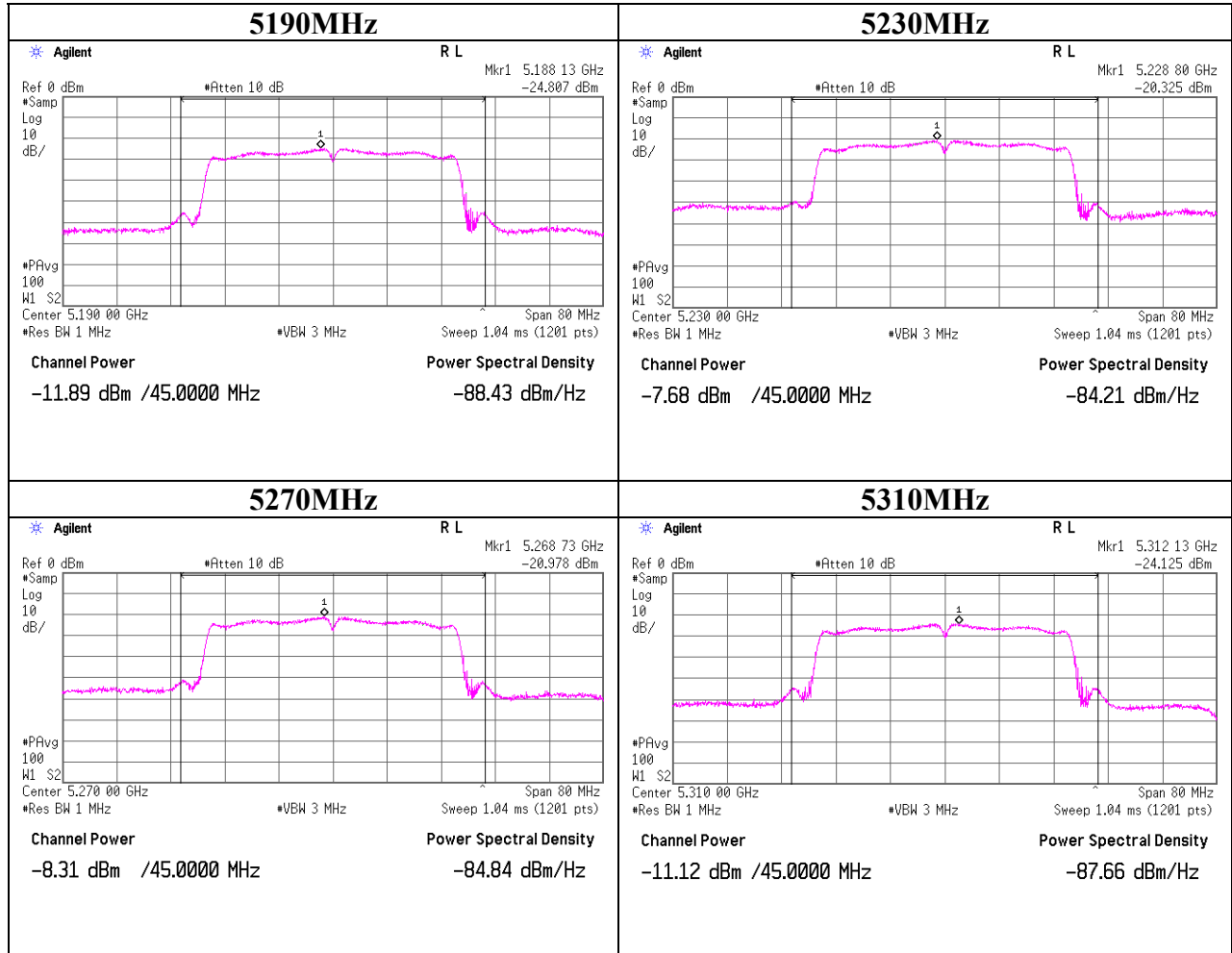
**Maximum Peak Output Power**  
 (Reference data)

**11n-20 Antenna 1**



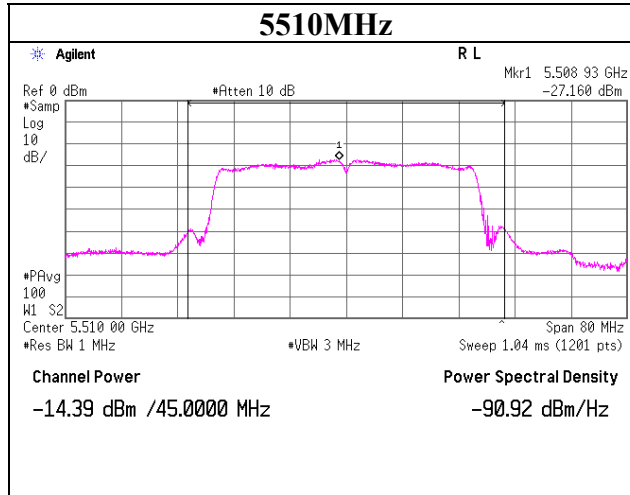
**Maximum Peak Output Power**  
 (Reference data)

**11n-40 Antenna 0**

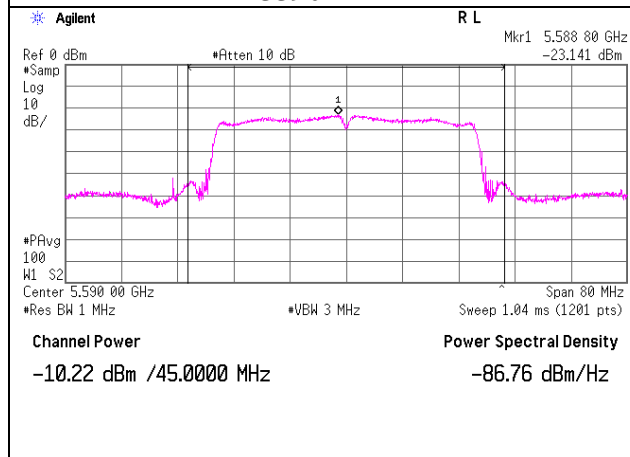


**Maximum Peak Output Power**  
 (Reference data)

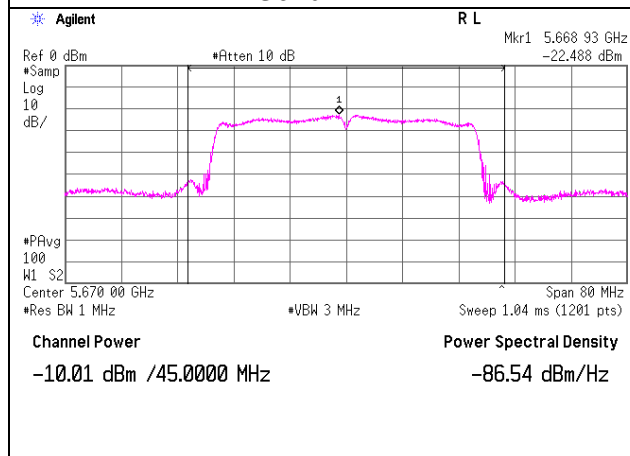
**11n-40 Antenna 0**  
**5510MHz**



**5590MHz**

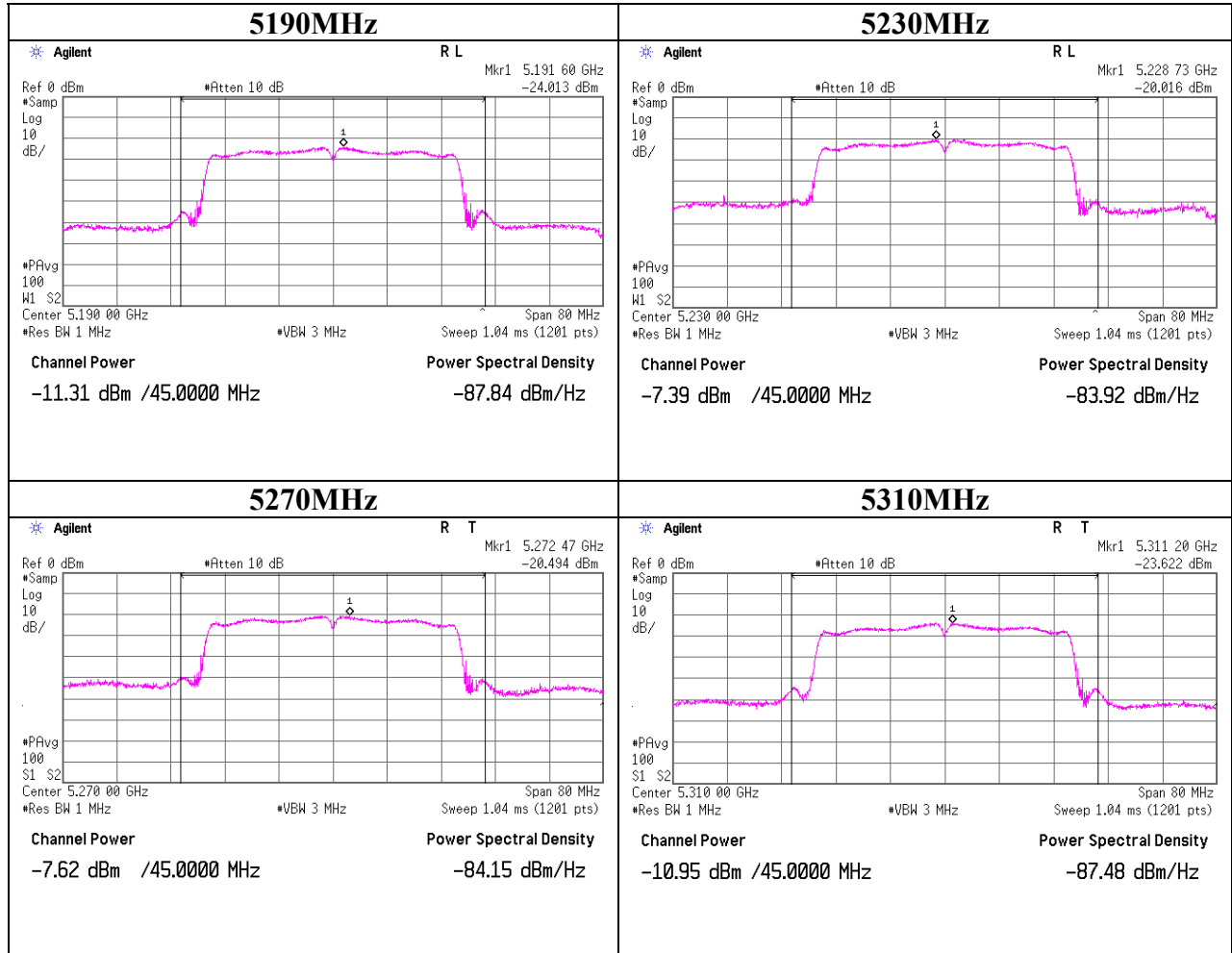


**5670MHz**



**Maximum Peak Output Power**  
 (Reference data)

**11n-40 Antenna 1**





## Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Anechoic Chamber  
 Report No. 31DE0057-HO-01  
 Date 11/23/2010 11/24/2010  
 Temperature/ Humidity 22deg.C. / 48% 25deg.C. / 43%  
 Engineer Hironobu Ohnishi Hiroyuki Furutaka

Mode 11n-20 Tx 5180MHz & Digital Transmitter Tx 2412MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	55.8	31.6	4.0	31.4	60.0	68.2	8.2	Bandedge	BandPower 30k/30M
Hori	5150.000	AV	43.8	31.6	4.0	31.4	48.0	53.9	5.9	Bandedge	
Vert	5150.000	PK	46.7	31.6	4.0	31.4	50.9	68.2	17.3	Bandedge	BandPower 30k/30M
Vert	5150.000	AV	39.8	31.6	4.0	31.4	44.0	53.9	9.9	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

**UL Japan, Inc.**

**Head Office EMC Lab.**

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

## Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Anechoic Chamber  
Report No. 31DE0057-HO-01  
Date 11/23/2010 11/23/2010  
Temperature/ Humidity 22deg.C. / 48% 24deg.C. / 47%  
Engineer Hironobu Ohnishi Hiroyuki Furutaka  
(1-10GHz) (30-1GHz / 10-40GHz)  
Mode 11n-20 Tx 5260MHz & Digital Transmitter Tx 2438MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	70.444	QP	44.1	6.7	7.6	32.0	26.4	40.0	13.6	Outside	
Hori	77.984	QP	48.1	6.6	7.7	32.1	30.3	40.0	9.7	Outside	
Hori	222.527	QP	40.5	17.0	9.1	31.9	34.7	46.0	11.3	Outside	
Hori	393.203	QP	43.0	17.4	10.3	31.9	38.8	46.0	7.2	Outside	
Hori	667.584	QP	32.4	21.4	11.8	32.2	33.4	46.0	12.6	Outside	
Hori	952.660	QP	28.4	25.5	13.1	31.2	35.8	46.0	10.2	Outside	
Hori	2225.267	PK	63.1	27.2	2.5	32.2	60.6	73.9	13.3	Inside	
Hori	10520.000	PK	51.0	39.1	-2.0	33.0	55.1	68.2	13.1	Outside	
Hori	15780.000	PK	51.5	38.4	-0.6	32.3	57.0	73.9	16.9	Inside	
Hori	2225.267	AV	56.0	27.2	2.5	32.2	53.5	53.9	0.4	Inside	
Hori	15780.000	AV	36.8	38.4	-0.6	32.3	42.3	53.9	11.6	Inside	
Vert	70.704	QP	45.1	6.7	7.6	32.0	27.4	40.0	12.6	Outside	
Vert	78.396	QP	46.8	6.6	7.7	32.1	29.0	40.0	11.0	Outside	
Vert	269.997	QP	36.7	18.2	9.5	31.9	32.5	46.0	13.5	Inside	
Vert	393.218	QP	40.6	17.4	10.3	31.9	36.4	46.0	9.6	Outside	
Vert	459.004	QP	36.7	18.5	10.7	32.0	33.9	46.0	12.1	Outside	
Vert	552.953	QP	35.7	19.6	11.2	32.0	34.5	46.0	11.5	Outside	
Vert	2225.267	PK	60.6	27.2	2.5	32.2	58.1	73.9	15.8	Inside	
Vert	10520.000	PK	49.7	39.1	-2.0	33.0	53.8	68.2	14.4	Outside	
Vert	15780.000	PK	51.0	38.4	-0.6	32.3	56.5	73.9	17.4	Inside	
Vert	2225.267	AV	52.4	27.2	2.5	32.2	49.9	53.9	4.0	Inside	
Vert	15780.000	AV	37.9	38.4	-0.6	32.3	43.4	53.9	10.5	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB  
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB



## Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Anechoic Chamber  
 Report No. 31DE0057-HO-01  
 Date 11/23/2010 11/24/2010  
 Temperature/ Humidity 22deg.C. / 48% 25deg.C. / 43%  
 Engineer Hironobu Ohnishi Hiroyuki Furutaka  
 Mode 11n-20 Tx 5320MHz & Digital Transmitter Tx 2462MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	59.1	31.8	4.1	31.5	63.5	68.2	4.7	Bandedge	BandPower 30k/3M
Hori	5350.000	AV	44.2	31.8	4.1	31.5	48.6	53.9	5.3	Bandedge	
Vert	5350.000	PK	51.8	31.8	4.1	31.5	56.2	68.2	12.0	Bandedge	BandPower 30k/3M
Vert	5350.000	AV	39.8	31.8	4.1	31.5	44.2	53.9	9.7	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

## Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Anechoic Chamber  
 Report No. 31DE0057-HO-01  
 Date 11/23/2010 11/24/2010  
 Temperature/ Humidity 22deg.C. / 48% 25deg.C. / 43%  
 Engineer Hironobu Ohnishi Hiroyuki Furutaka  
 Mode 11n-40 Tx 5190MHz & Digital Transmitter Tx 2412MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	57.7	31.6	4.0	31.4	61.9	68.2	6.3	Bandedge	BandPower 30k/3M
Hori	5150.000	AV	49.5	31.6	4.0	31.4	53.7	53.9	0.2	Bandedge	
Vert	5150.000	PK	57.0	31.6	4.0	31.4	61.2	68.2	7.0	Bandedge	BandPower 30k/3M
Vert	5150.000	AV	45.7	31.6	4.0	31.4	49.9	53.9	4.0	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

## Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Anechoic Chamber  
Report No. 31DE0057-HO-01  
Date 11/23/2010 11/23/2010  
Temperature/ Humidity 22deg.C. / 48% 24deg.C. / 47%  
Engineer Hironobu Ohnishi Hiroyuki Furutaka  
(1-10GHz) (30-1GHz / 10-40GHz)  
Mode 11n-40 Tx 5230MHz & Digital Transmitter Tx 2438MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	70.444	QP	44.1	6.7	7.6	32.0	26.4	40.0	13.6	Outside	
Hori	77.984	QP	48.1	6.6	7.7	32.1	30.3	40.0	9.7	Outside	
Hori	222.527	QP	40.5	17.0	9.1	31.9	34.7	46.0	11.3	Outside	
Hori	393.203	QP	43.0	17.4	10.3	31.9	38.8	46.0	7.2	Outside	
Hori	667.584	QP	32.4	21.4	11.8	32.2	33.4	46.0	12.6	Outside	
Hori	952.660	QP	28.4	25.5	13.1	31.2	35.8	46.0	10.2	Outside	
Hori	2225.267	PK	63.9	27.2	2.5	32.2	61.4	73.9	12.5	Inside	
Hori	2799.943	PK	58.5	27.7	2.9	31.9	57.2	73.9	16.7	Inside	
Hori	10460.000	PK	48.7	39.1	-2.1	33.0	52.7	68.2	15.5	Outside	
Hori	15690.000	PK	47.2	38.8	-0.5	32.3	53.2	73.9	20.7	Inside	
Hori	2225.267	AV	56.2	27.2	2.5	32.2	53.7	53.9	0.2	Inside	
Hori	2799.943	AV	48.9	27.7	2.9	31.9	47.6	53.9	6.3	Inside	
Hori	15690.000	AV	35.4	38.8	-0.5	32.3	41.4	53.9	12.5	Inside	
Vert	70.704	QP	45.1	6.7	7.6	32.0	27.4	40.0	12.6	Outside	
Vert	78.396	QP	46.8	6.6	7.7	32.1	29.0	40.0	11.0	Outside	
Vert	269.997	QP	36.7	18.2	9.5	31.9	32.5	46.0	13.5	Inside	
Vert	393.218	QP	40.6	17.4	10.3	31.9	36.4	46.0	9.6	Outside	
Vert	459.004	QP	36.7	18.5	10.7	32.0	33.9	46.0	12.1	Outside	
Vert	552.953	QP	35.7	19.6	11.2	32.0	34.5	46.0	11.5	Outside	
Vert	2225.267	PK	61.3	27.2	2.5	32.2	58.8	73.9	15.1	Inside	
Vert	2799.943	PK	56.0	27.7	2.9	31.9	54.7	73.9	19.2	Inside	
Vert	10460.000	PK	45.9	39.1	-2.1	33.0	49.9	68.2	18.3	Outside	
Vert	15690.000	PK	48.8	38.8	-0.5	32.3	54.8	73.9	19.1	Inside	
Vert	2225.267	AV	52.6	27.2	2.5	32.2	50.1	53.9	3.8	Inside	
Vert	2799.943	AV	42.6	27.7	2.9	31.9	41.3	53.9	12.6	Inside	
Vert	15690.000	AV	37.0	38.8	-0.5	32.3	43.0	53.9	10.9	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB  
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

## Radiated Spurious Emission

Test place Head Office EMC Lab. No.4 Anechoic Chamber  
 Report No. 31DE0057-HO-01  
 Date 11/23/2010 11/24/2010  
 Temperature/ Humidity 22deg.C. / 48% 25deg.C. / 43%  
 Engineer Hironobu Ohnishi Hiroyuki Furutaka  
 Mode 11n-40 Tx 5310MHz & Digital Transmitter Tx 2462MHz

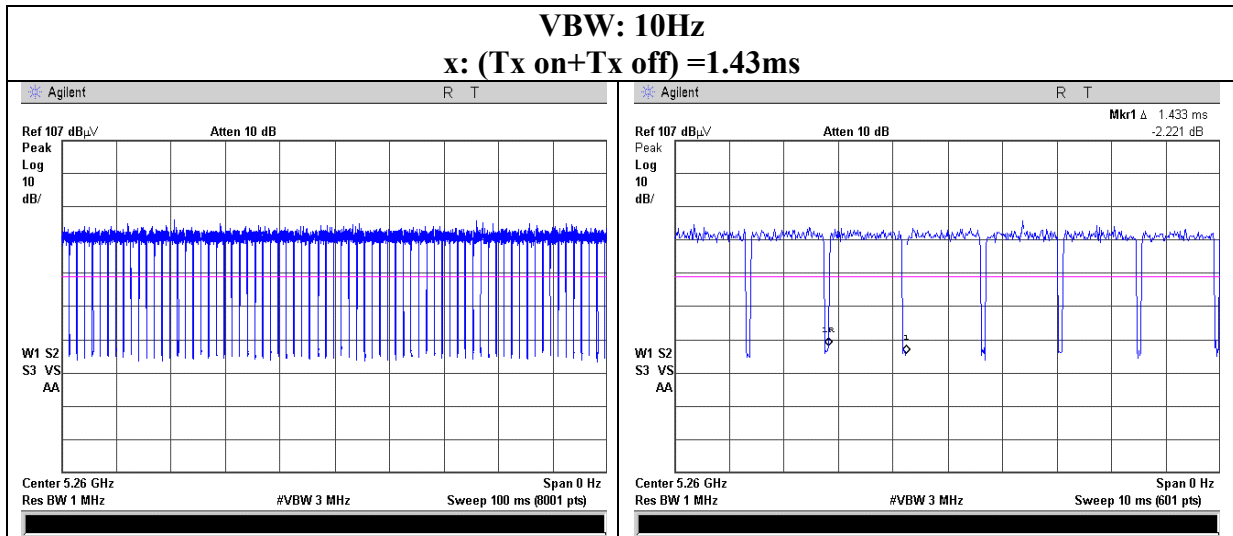
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	62.7	31.8	4.1	31.5	67.1	68.2	1.1	Bandedge	BandPower 30k/3M
Hori	5350.000	AV	47.9	31.8	4.1	31.5	52.3	53.9	1.6	Bandedge	
Vert	5350.000	PK	54.6	31.8	4.1	31.5	59.0	68.2	9.2	Bandedge	BandPower 30k/3M
Vert	5350.000	AV	42.7	31.8	4.1	31.5	47.1	53.9	6.8	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

## VBW (AV) Calculation

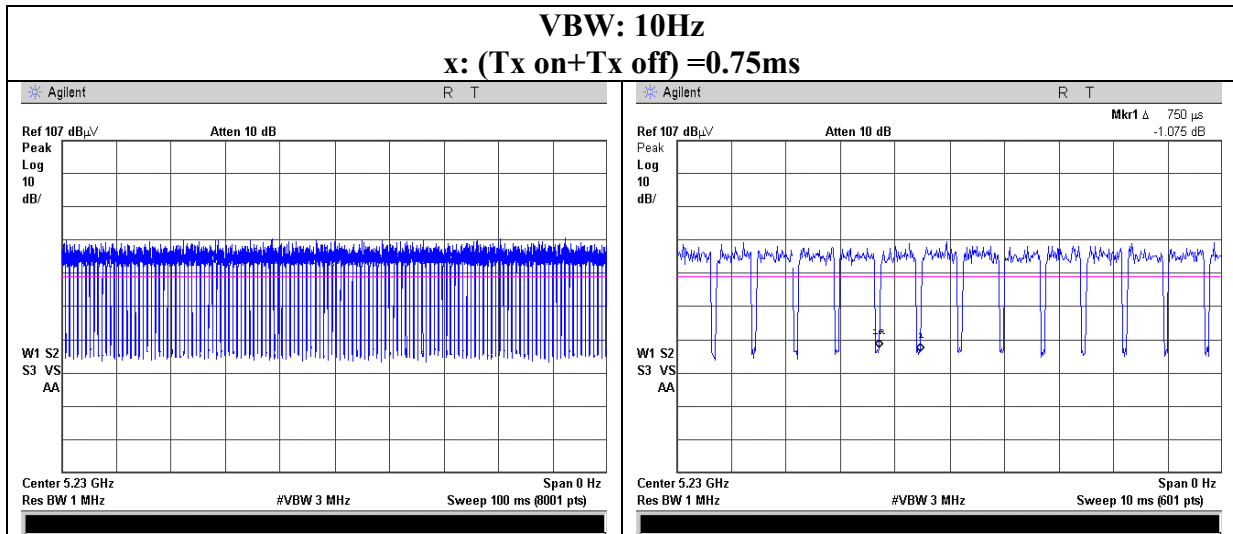
**11n-20**

**VBW: 10Hz**  
**x: (Tx on+Tx off) =1.43ms**



**11n-40**

**VBW: 10Hz**  
**x: (Tx on+Tx off) =0.75ms**



## **APPENDIX 3: Test instruments**

### **EMI test equipment**

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-23	Thermo-Hygrometer	Custom	CTH-201	0004	AT	2009/12/22 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	AT/RE	2010/02/03 * 12
MCC-114	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	290212/4	AT	2010/08/05 * 12
MAT-20	Attenuator(10dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2010/01/26 * 12
MTA-36	Terminator	-	50Ω SMA	-	AT	Pre Check
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	AT	2009/11/20 * 12
MCC-66	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	28636/2	AT	2010/04/27 * 12
MAT-21	Attenuator(20dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	901247	AT	2010/01/26 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2010/02/02 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE	2010/02/09 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2010/08/08 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	174410(1m) / 284655(5m)	RE	2010/01/25 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2010/03/16 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	RE	2010/10/27 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2010/10/11 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2010/10/11 * 12
MCC-50	Coaxial cable	UL Japan	-	-	RE	2010/03/18 * 12
MAT-51	Attenuator(6dB)	Weinschel	2	AS3557	RE	2010/01/20 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2010/03/05 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2010/06/29 * 12
MCC-54	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	RE	2010/03/02 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	3950M00205	RE	2010/06/11 * 12
MHF-23	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCC	603	RE	2010/01/27 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278923/4	RE	2009/12/19 * 12
MSA-06	Spectrum Analyzer	Agilent	E4407B	MY45107638	RE	2010/04/07 * 12

**The expiration date of the calibration is the end of the expired month.**

**All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.**

**As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.**

**Test Item: RE: Radiated Emission  
AT: Antenna Terminal Conducted test**

---

**UL Japan, Inc.**  
**Head Office EMC Lab.**  
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8116  
Facsimile : +81 596 24 8124